

1.0 CUP REPORT 94-5 REVIEW

1.1 Background

The text for Task Assignment 94-5 reads as follows:

The contractor shall survey the market place and analyze existing COTS high rate switches and associated components necessary to meet EDOS requirements to determine their applicability for use in the consolidated facility (see task order 94-2) and the baseline system. The contractor shall establish a schedule and milestones to demonstrate and report progress every two weeks, this task shall be completed no later than December 30, 1994.

The analyzed TRW study report is dated October 28, 1994 and contains 22 pages. Most of the report consists of bulletized presentation charts.

1.2 Objective

The objective of this analysis is to answer the following questions:

1. Did the study address all elements of the task SOW? Did they (TRW) answer all of the questions?
2. Did the study identify all of the technical and cost impacts?
3. Did the study consider requirement changes that would be appropriate?
4. Are the answers valid? Can the derivation of the answers be validated?
5. Should the study have addressed additional or different topics?
6. Does the study provide an adequate basis for NASA to make a selection.

1.3 Analysis

Key Assumptions

The following are key assumptions which may be found on page five of the report.

- **Requirements derived from the EDOS Functional and Performance Specification and the IRD between the EDOS and the TGT.**

The report mentions that the vendor requirements specifications were reviewed by NASA. Was there any specific process followed and documented for deriving/reviewing these requirements?

Was a matrix or look-up table generated for cross referencing these 'new' requirements to old requirements and associated rationale?

- **High Rate Matrix Switch (HRMS) potential configurations must be derived from vendors/suppliers who offer COTS hardware/software.**
There appears to be negligible detail pertaining to the requirements for a high rate switch regarding the consolidated vs. the baseline facility. What is needed is the baseline and consolidated high rate switch configurations and how do the vendors fulfill them. Some text was provided for each of the vendor options but it is difficult to evaluate any distinctions between them. It would be beneficial to state the requirements for each configuration and how do the three vendor's products compare.
- **COTS is defined at the board level or higher.**
No comment

SOW

The analysis of TRW report 94-5 is organized to correspond to the Task assignment.

The contractor shall survey the market place and analyze existing COTS high rate switches and associated components necessary to meet EDOS requirements to determine their applicability for use in the consolidated facility (see task order 94-2) and the baseline system.

When surveying the industry for vendors, three were chosen. It is unclear as to what qualifications were used in choosing these vendors. The report should also consider the following :

1. Were vendor qualifications systematically mapped against the requirements derived? (pages 10,11,12 against Appendix B)
2. Was historical customer feedback requested and evaluated?
3. Are the three chosen major suppliers likely to be in existence in the future to provide product support, i.e., upgrades and maintenance?
4. To what level are similar components interchangeable between vendors?

The contractor shall establish a schedule and milestones to demonstrate and report progress every two weeks, this task shall be completed no later than December 30, 1994.

The schedule and milestone charts provided (page 6 and 7) did not include drafts or reviews of final documents. Clarification is required for the statement in the study which refers to preparing a "suitable vendor survey and design reports." It is not understood what TRW refers to as suitable. Also, will there be a cost assessment included?

1.4 Conclusions

The chart below outlines the steps taken and comments associated with the method of approach used by TRW to satisfy the task assignment.

ASSIGNMENT	APPROACH TAKEN AND COMMENTS
Task Approach	<p>The task approach is described by the following steps:</p> <ol style="list-style-type: none"> 1. Consolidation of requirements (F&PS and TGT-EDOS IRD) 2. Preparation of specific document for vendor survey 3. Identification of potential vendors 4. Survey of vendors 5. Prepare survey results for suitable candidates 6. Present alternative design options and cost assessment <p>Comments: The rationale for deriving requirement specification is not documented in the report. There is no reference to any type of formal control of these newly derived requirements. The task approach did not include sufficient criteria to evaluate the vendors. Without knowledge of the review process that the requirements under went and a historical inquiry into each of the vendors themselves it would be difficult to validate the competence of the vendors chosen. Configuration diagrams for each option and vendor would have added greatly to the identification process.</p>
Schedule/Milestones	<p>The schedules and milestones are as follows:</p> <ol style="list-style-type: none"> 1. 28/Oct; resume progress reports every two weeks 2. 04/Nov; requirements consolidation 3. 11/Nov; final vendor specification document 4. 11/Nov; complete identification of potential vendors 5. 14/Nov; send specifications to vendors 6. 14-16/Nov; respond to vendors, review vendor products and/or responses 7. 17-29/Dec; prepare final report 30/Dec; submit final report <p>Comments: Will the final report contain the design options and cost assessments that are omitted in this study? It would have been beneficial for the schedule to have included an analysis of the final report prior to submission.</p>
Preliminary Evaluation of	Three vendors identified were Lighthouse, Dicon, and

COTS HRMS & other Components	<p>Astarte. All were evaluated for the following:</p> <ol style="list-style-type: none"> 1. Plant visit 2. Product documents received and reviewed (product specifications) 3. Additional support components necessary for design <p>Comments: Was there a planned agenda for these plant visits addressing the data to be obtained from the vendors? What is the significance of the information/documents that were provided to TRW? It is difficult to validate the choice of vendors without knowing what type of review the product documents were subjected to. Would the additional components specified be available from the same vendor or would a separate vendor study determine this?</p>
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Exhibit 4-1: Conclusions

1.5 Summary

Below is a brief summary of the objectives of this analysis with the rationale to support our findings.

- Did the study address all elements of the task SOW? Did they (TRW) answer all of the questions?**
No, there is insufficient information concerning consolidated and baseline requirements. It is unclear how appendix B requirements map to approved requirements or to the evaluation criteria for vendor selection.
- Did the study identify all of the technical and cost impacts?**
No, the report does not address technical impacts or cost?
- Did the study consider requirement changes that would be appropriate?**
No, requirement analysis is not included as part of this task.
- Are the answers valid? Can the derivation of the answers be validated?**
No, the only information included in the report was appendix B requirements and the information on pages 10 through 12 for each vendor. No supporting information was provided to validate this information.
- Should the study have addressed additional or different topics?**

Yes, it would have been beneficial to have had supporting information for the requirements in appendix B. Also the study could have included an evaluation criteria, a list of vendors contacted, historical vendor information, and an opportunity for reviewing the technical documents and decisions made.

- **Does the study provide an adequate basis for NASA to make a selection.**
No, the evaluation criteria and the lack of analysis pertaining to vendor compliance mapped against the requirements does not provide an adequate basis for NASA to make a selection.